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Future of Payments

Exploring Stablecoins, CBDCs, and "RWAs"

April 6th, 2023

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Overview

Exploring Stablecoins, CBDCs, and «RWAs»

1. Motivation
2. Discussion of today's and tomorrow's payment methods
 1. Stablecoins
 2. CBDCs
 3. Tokenized "Real World Assets"
3. Interactions
4. And Beyond?

Motivation

Growth and Importance of Stablecoins, CBDCs, and Tokenized "Real World Assets"

Fast growth of stablecoins

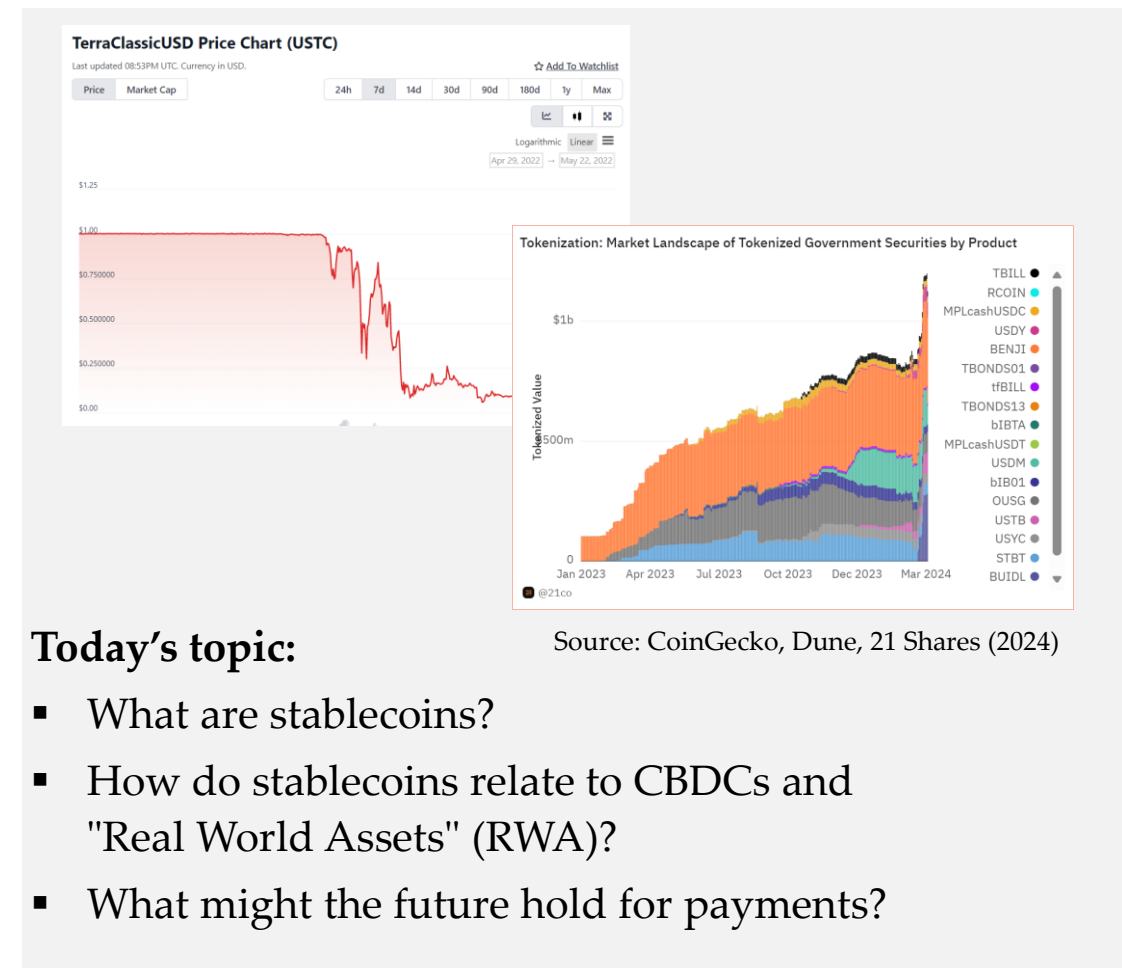
- Increasing demand for stablecoins & number of stablecoins
- Market cap of stablecoins has risen to over \$ 100 bn in a few years
- But crash of stablecoins TerraUSD & USDC depeg

Central banks expected to launch CBDCs

- Multiple central banks explore with CBDC and announced plans to launch them (e.g., E-Yuan, digital Euro)

Tokenization of "Real World Assets" gaining traction

- Tokenized Shares of SMEs (e.g., Aktionariat)
- Tokenized Treasury Bills (1\$ Bn. on public blockchains)
- Recent BlackRock USD "Institutional Digital Liquidity Fund"



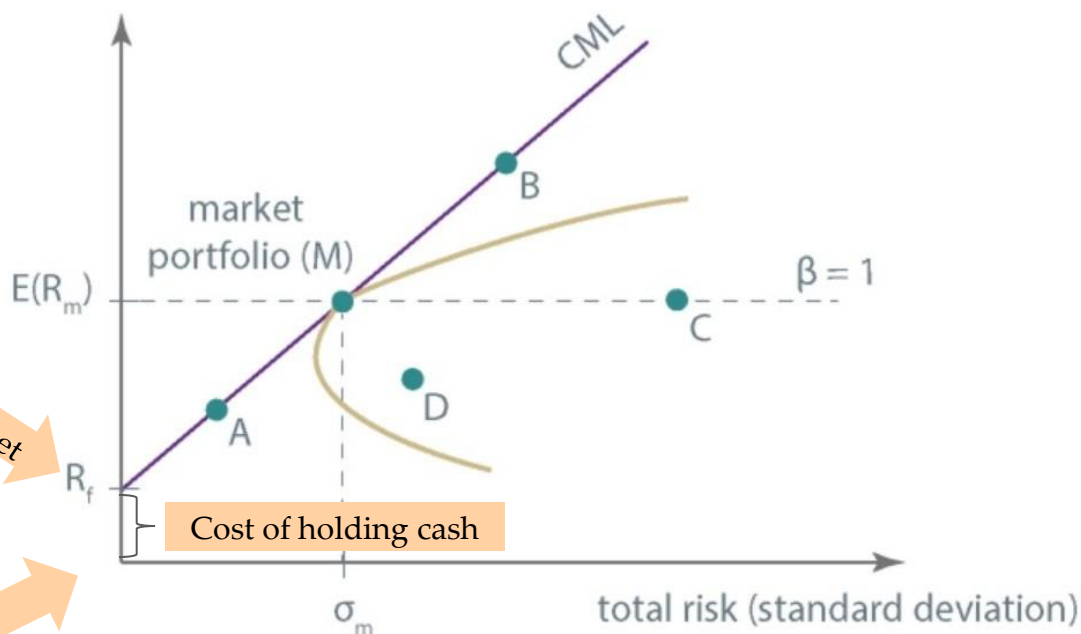
Today's topic:

- What are stablecoins?
- How do stablecoins relate to CBDCs and "Real World Assets" (RWA)?
- What might the future hold for payments?

Why Pay and Hold Cash?

Trade-off between Liquidity, Transaction Costs and Return

Portfolio theory (CAPM)



Source: CFA (2022)

Cash or digital representations **come at a cost**, i.e., opportunity costs (in simple terms, "inflation"). So why do we pay and hold cash?

- **Liquidity costs:** Cash is the most liquid asset
- **Transaction costs:** Transaction costs, i.e. the need to rebalance the portfolio after a transaction
 1. A: Sell part of optimal portfolio A
 2. A: Send cash to B
 3. B: Receive cash from A
 4. B: Increase optimal portfolio B

→ **Due to liquidity and transaction cost considerations, people hold a cash reserve**

What are Stablecoins?

Track Price using different Collateral Sources and Collateral Management Techniques

Stablecoin matrix

	Centralized	Decentralized
Exogenous	Tether, USDC	Dai
Endogenous	Terra	Synthetix

Source: Hafner, Pereira, Dieltl, Beccuti (2023)

First dimension: Collateral value

- Exogenous: External source (e.g., gold)
- Endogenous: Internal source (i.e., asset of the same ecosystem)
 - Relevant trade-off: Death spiral vs. independence

Second dimension: Collateral management

- Central mechanism manages collateral and decides when adjust supply
- Individuals manage their own collateral decentrally and adjust supply
 - Relevant trade-off: Bank-run vs. costs

Stablecoins track the price of other assets

→ Stablecoins represent, but are not the original

Stablecoins are flexible assets built by anyone

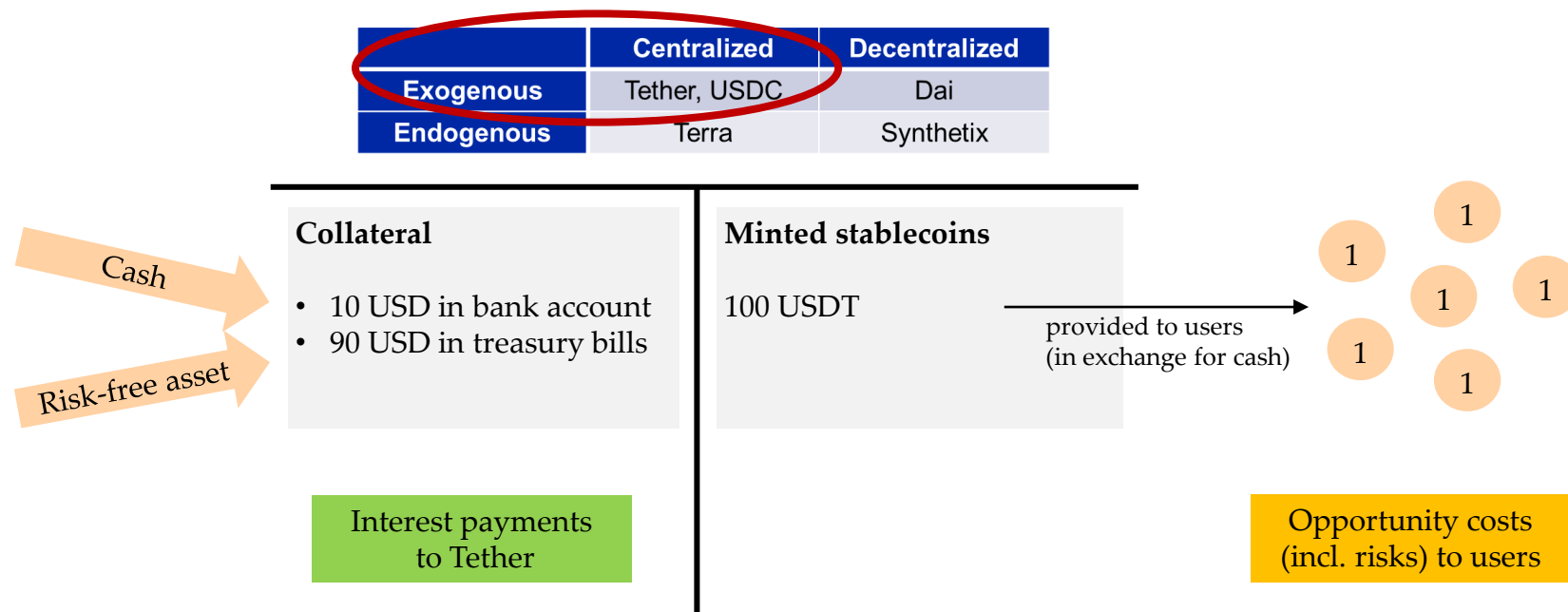
→ Competition exists between stablecoins

Stablecoins can be quickly adjusted

→ Stablecoins can respond to changes in the competitive landscape

What are Stablecoins?

The USDT / USDC Example

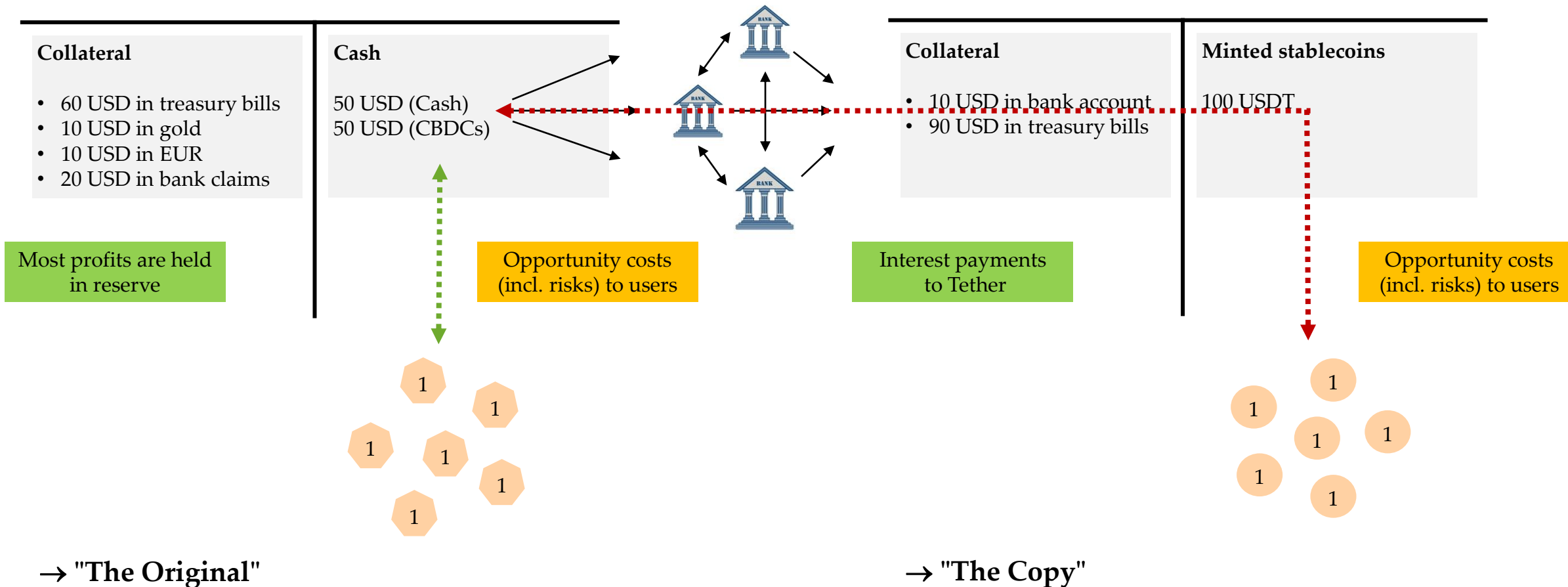


"Tether reported a "record-breaking" \$2.85 billion of profits last quarter", Tether (2024)

What are CBDCs?

CBDCs vs. Stablecoins

Central bank



What are CBDCs?

CBDCs vs. Stablecoins

Central bank

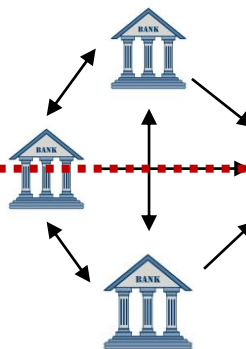
Collateral

- 60 USD in treasury bills
- 10 USD in gold
- 10 USD in EUR
- 20 USD in bank claims

Most profits are held in reserve

Cash

50 USD (Cash)
50 USD (CBDCs)



Opportunity costs (incl. risks) to users

Stablecoins

Collateral

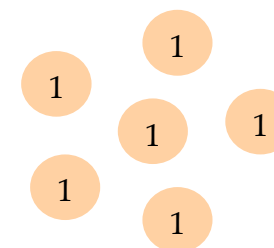
- 10 USD in bank account
- 90 USD in treasury bills

Interest payments to Tether

Minted stablecoins

100 USDT

Opportunity costs (incl. risks) to users



CBDCs are digital cash
→ CBDCs are the original

CBDCs are standardized assets created by central banks
→ No competition (within a currency)

CBDCs cannot adapt quickly
→ CBDCs are slow to respond and innovation is limited

→ "The Original"

What other means of payments exists?

Payment Tokens that Provide a Return

Flatcoins

"Flatcoins are cryptocurrencies whose value is pegged to the cost of living", e.g.

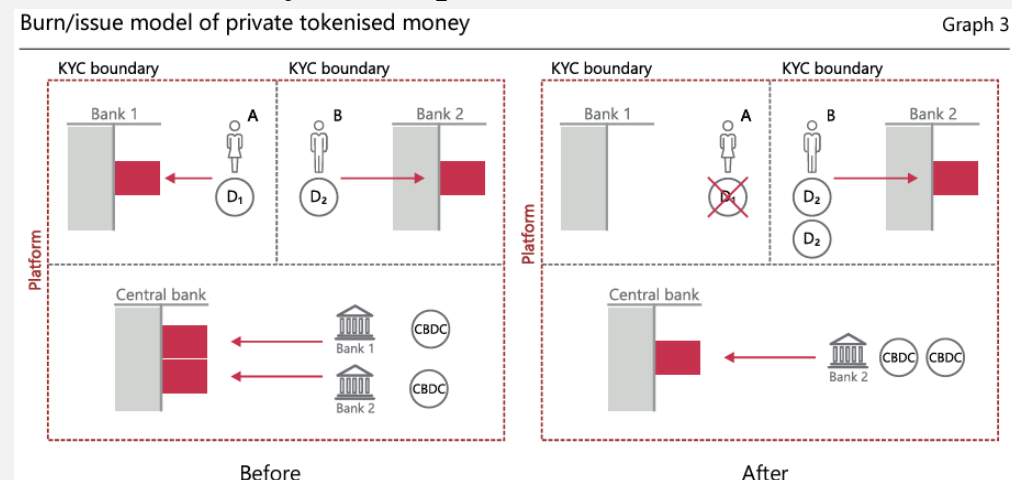
- **Frax Price Index** – centralized & (mostly) exogenous stablecoin (USDC-like): Treasury invests collateral to be able to track a CPI-index
- **Nuon** – decentralized & exogenous stablecoin (Dai-like): The over-collateralization ratio is adjusted to track a CPI index, i.e. users minting stablecoins will have to provide more collateral to avoid being liquidated



Tokenized deposits

Tokenized deposits, "represent traditional bank deposits on a blockchain"

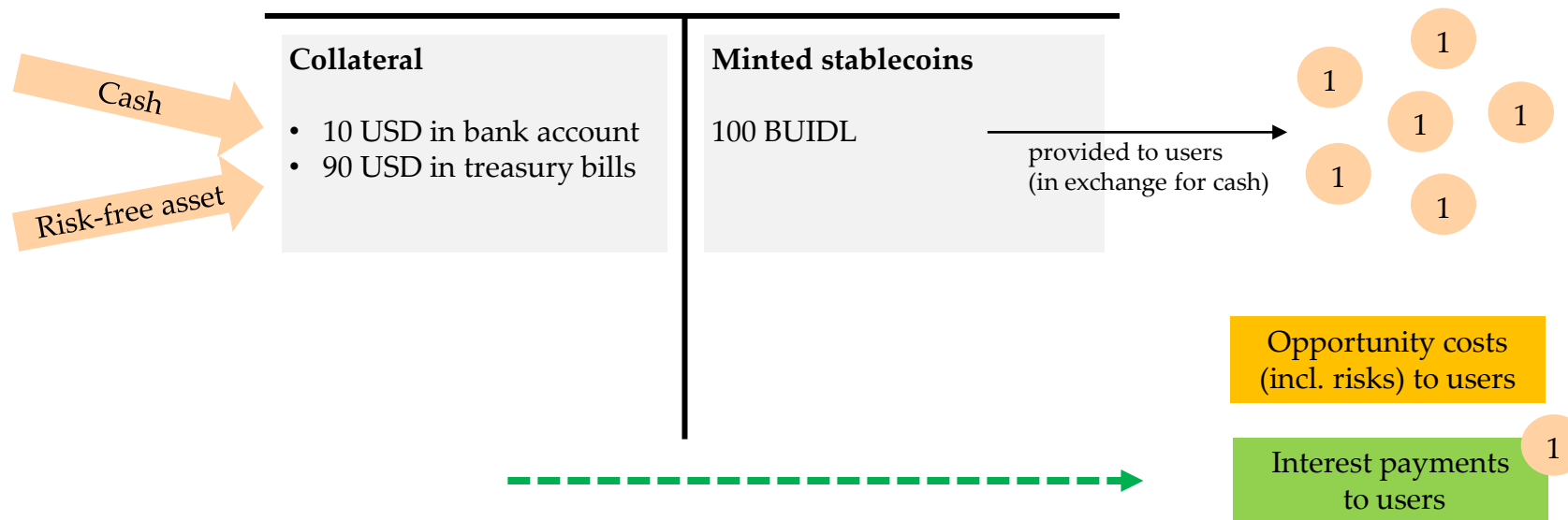
- Over-collateralized stablecoins (using deposits as collateral)
- Users receive returns on deposits and pay with digital coins backed by the deposit



→ Represents current banking system on the blockchain

What are Tokenized «RWAs»?

BlackRock USD “Institutional Digital Liquidity Fund” Example



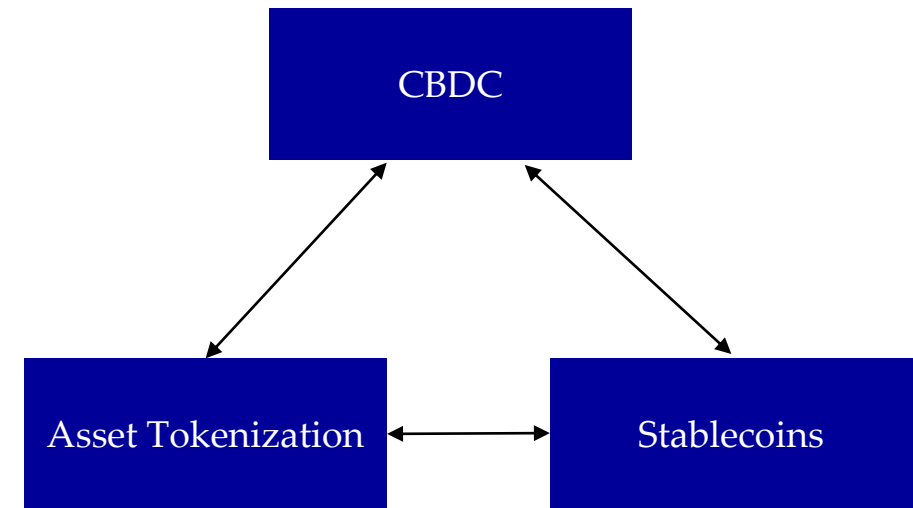
"Investors can transfer their tokens 24/7/365 to other pre-approved investors. Fund participants will also have flexible custody options allowing them to choose how to hold their tokens.", Bloomberg (2024)

Payments in a Tokenized World

Interaction between Stablecoins, Tangible Assets ("Real World Assets") and CBDCs

Interactions

- Tokenized tangible assets ("Real World Assets ") require stablecoins for payment of dividends/coupons etc.
- Stablecoins (centralized) and CBDC are in some competition with each other
- Tokenized «RWAs» increase liquidity and decrease the need for cash / CBDC



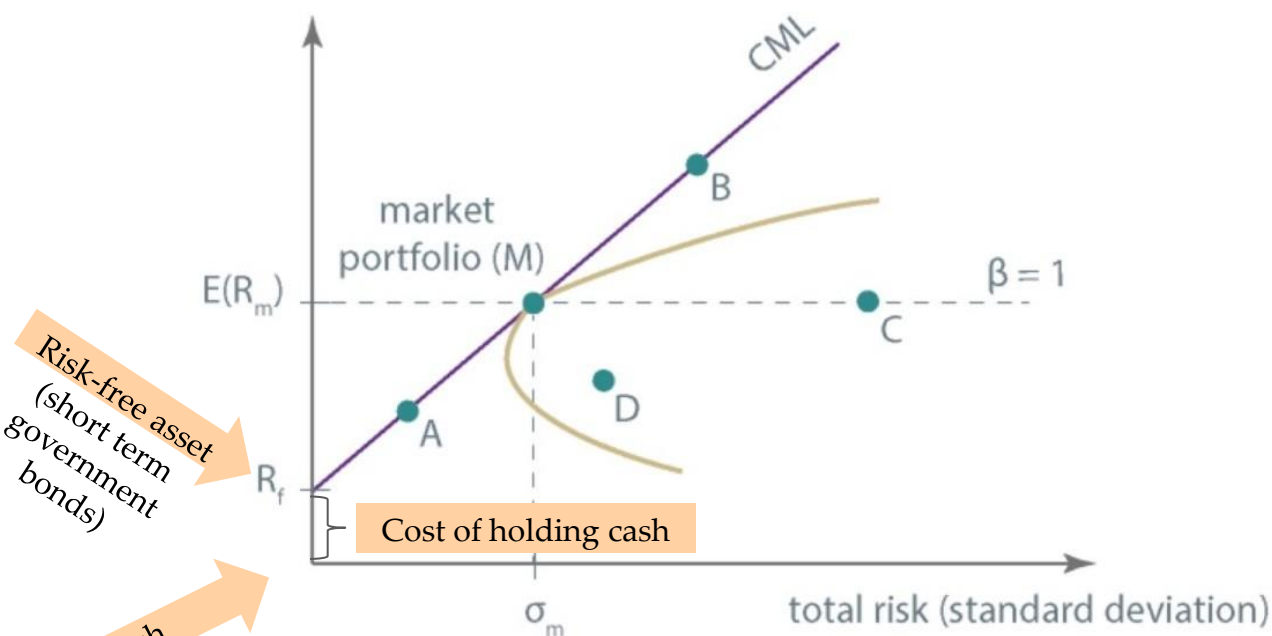
Possible future of stablecoins in a tokenized world

- CBDCs or derivatives on public blockchains
- Stablecoins will remain; innovation will lead to new forms similar to "RWAs" or "deposit tokens" with some form of interest payments (e.g. public form of the BUILD Blackrock fund).
- "Risk-free" RWAs will be used as stablecoins

And Beyond Tomorrow?

What if Technology Can Increase Liquidity and Decrease Transaction Costs? Why Pay with Cash at All?

Portfolio theorie (CAPM)



Source: CFA (2022)

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 2. ~~A: Send cash to B~~
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 4. Automatic conversion of optimal portfolio A to B
 5. B: Increase optimal portfolio B

→ Direct transfer of assets will become more important in the future, also as a means of payment!

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Thank you for your attention!

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